Work Plan For Best Available Technologies (BAT) Review and Conference Facilitation Anchorage, Alaska

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Submitted To:
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TABLE OF CONTENTS

LIST OF FIGURES

WORK PLAN FOR BEST AVAILABLE TECHNOLOGIES (BAT) REVIEW AND CONFERENCE FACILITATION ANCHORAGE, ALASKA

1.0 INTRODUCTION

This document represents our work plan to develop and implement an Alaska Department of Environmental Conservation (ADEC) sponsored Best Available Technology (BAT) Conference, in accordance with Title 18 of Alaska Administrative Code Chapter 75.447 (18 AAC 75.447). The purpose of this project is to develop a methodology to review and appraise alternatives to technologies used by and to potentially be used by Alaskan plan holders in developing their oil discharge prevention and contingency plans (C-Plans).

This work effort is being conducted in accordance with Shannon & Wilson's Alaska Department of Environmental Conservation (ADEC) Term Contract, Division of Spill Prevention and Response No. 18-8003-27. Development of this work plan was performed in general accordance with the ADEC December 23, 2003 request for proposal (RFP) document and our January 13, 2004 revised cost proposal. ADEC authorization to proceed with this project task was received on January 20, 2004 with Notice to Proceed No. 18-8003-27-01.

2.0 PROJECT BACKGROUND

2.1 Project Description

This project consists of a review of proven technologies used in the worldwide spill prevention and response arena and facilitation of a BAT Conference in Anchorage, Alaska. Six technology categories have been selected at this time for review by the ADEC including:

1. Leak detection for crude oil transmission pipelines;
2. Secondary containment liners for oil storage tanks;
3. Fast water booming;
4. Viscous oil pumping systems;
5. Well capping; and
6. Source control technologies.

Shannon & Wilson will use several methods to review the six technology categories including: interviewing individuals knowledgeable of proven technologies used in the worldwide spill prevention and response arena; subcontracting with a spill technology expert to provide guidance in researching and evaluating existing technologies; conducting literature and internet searches; and investigating current and alternate technologies discussed in existing C-Plans. This review will be followed by soliciting, evaluating and screening input from technology providers.

Finally, in conjunction with the ADEC project manager, Shannon & Wilson will select presenters and organize a BAT Conference for presenting the best available of these six technology categories to an ADEC established evaluation committee and other interested parties.

2.2 Project History

Petroleum products are handled throughout Alaska in operations that include exploration, production, storage and transportation. The main exploration and production facilities are located in the vicinity of Prudhoe Bay, in northern Alaska, and Cook Inlet, in south central Alaska. Prior to distribution inside of Alaska and export outside of Alaska, petroleum oil is stored in large, mostly above ground storage tanks at refineries, terminals, metropolitan areas and in rural villages. The petroleum product is transported by railcar, trucks, barges, ocean vessels, and small and large diameter transmission pipelines. Most petroleum exploration, production, storage and transportation operators are required to prepare C-Plans which outline spill preventive measures and pre-determined response actions that will be enacted in the unfortunate event of an oil discharge.

The ADEC requires, per 18 AAC 75.425(e)(4)(A), that C-Plans provide for the use of the best available technology. The C-Plans must include a written justification describing how the technology proposed for use is the best available for the applicant's operation. In order to assure that proven new technologies are considered for use in C-Plans, the ADEC has tasked itself with reviewing and appraising technology applied at other locations in the United States and the world that represent alternatives to the technologies used by plan holders. The ADEC has established, in 18 AAC 75.447, that this review and appraisal will be conducted by sponsoring a technology conference at least every five years. Previous technology conference planning has been done by a work group comprised of representatives from each of the Primary Response Action Contractors (PRACs) in Alaska, the two Regional Citizen's Advisory Councils (RCACs), and the ADEC. The requirement for ADEC to sponsor a technology conference at least every five years was established in 1997, however, funding for this effort by Shannon & Wilson was not appropriated until 2003.

2.3 Project Objectives

Shannon & Wilson's objective for this project is to establish a methodology to review and appraise proven technologies and new innovative technologies in the six technology categories identified by the ADEC. The objective of the review is to document and become familiar with existing technologies used worldwide in the spill prevention and response arena that could be effective in Alaska. Information obtained during the review process will be used to preliminarily screen technologies in the six categories using evaluation criteria established in 18 AAC 75.445(k)(3). The technology preliminary screening will consider: past performance;

availability; applicability to Alaska operations; effectiveness; cost; compatibility with existing technologies; practical feasibility; and environmental impacts and benefits. Potential best available technologies in the six technology categories will be presented to an ADEC established evaluation committee at a BAT Conference in Anchorage, Alaska for appraisal.

The BAT Conference will provide interested parties with a venue to present the status of existing technologies in use as well as introduce new technologies that may be considered superior. Following appraisal of existing and new technologies, written findings will be summarized in a report identifying new technologies that the ADEC considers represent proven technological breakthroughs in oil discharge containment, control, or cleanup equipment. Plan holders, PRACs, RCACs, and other interested parties will be informed of the findings and will be presented with an opportunity to submit comment on the report to the ADEC.

2.4 Project Approach

Shannon & Wilson's development of this work plan is the initial step toward accomplishing the project objectives. Our work plan describes the methodology we anticipate using to review and appraise the technologies in the six categories. The review effort will consist of: interviewing individuals knowledgeable of proven technologies used in the worldwide spill prevention and response arena; subcontracting with a spill technology expert to provide guidance in researching and evaluating existing technologies; conducting literature and internet searches; and investigating current and alternate technologies discussed in existing C-Plans. Following the interviews and literature review, Shannon & Wilson will: design and implement a world wide web solicitation for input from technology providers; evaluate and preliminarily screen technologies in the six categories using evaluation criteria established in 18 AAC 75.445(k)(3); and, in conjunction with the ADEC project manager, select presenters for the BAT Conference. The review and preliminary screening effort will be documented in a BAT Conference Plan. Following approval of the BAT Conference Plan, Shannon & Wilson will facilitate the BAT Conference and produce a summary report containing a description of the process.

This project, as outlined in the RFP Scope of Work, will consist of performing five tasks. Task 1 is the development of this work plan for the technology review, solicitation and evaluation. Task 2 consists of subcontracting with a spill technology expert to assist Shannon & Wilson and the ADEC with the review and appraisal of the technologies in the six categories. Task 3 involves the implementation of this work plan including compilation of data and development of the BAT Conference Plan. Task 4 is the actual BAT Conference facilitation and Task 5 consists of the preparation of the BAT Conference report.

Shannon & Wilson has established the Schedule in Section 9.0 for accomplishing the five-task work effort described in this work plan. The schedule developed in this work plan,

including the period for the web solicitation, arrangements for the spill technology expert and the conference facilitator, and facility reservation, is based on the assumption that the BAT Conference event will take place on May 27 and 28, 2004.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The ADEC project manager for this effort is Ms. Betty Schorr, Section Manager for ADEC IPP Marine Vessels. Shannon & Wilson's primary contact person for this project is Mr. Timothy Terry, C.P.G., who will be supported by Mr. Stafford Glashan, P.E., our senior project reviewer, Ms. Anna Jones, geologist, and other members of our technical staff. Dr. Robert Hiltabrand has been subcontracted as our spill technology expert and Mr. Tom McCloskey as our BAT Conference facilitator.

4.0 TASK 1: TECHNOLOGY REVIEW, SOLICITATION AND EVALUATION

Shannon & Wilson will use the methods discussed in the following sections to review solicit, and evaluate technologies in the six categories.

4.1 Technology Review

To develop this work plan, Shannon & Wilson has reviewed and documented some of the available information in the six technology categories. Interviews were conducted with individuals knowledgeable of proven technologies used in the worldwide spill prevention and response arena. These individuals included ADEC staff members; PRAC and RCAC employees; Dr. Hiltabrand, our spill technology expert; and representatives of Alaskan operations required to have C-Plans. Shannon & Wilson and Dr. Hiltabrand also conducted literature and internet searches revealing the enormous amount of information available regarding studies, products and technology providers in the six technology categories. ADEC staff accumulated and provided, for our review, numerous C-Plan portions and sections that described the current and alternate technologies currently being used and considered as best available technology in Alaska.

Based on our review, which we consider to be preliminary at this time, we have discovered several documents which provide a detailed discussion of the technologies in the six categories. These documents and a summary of the information provided are discussed below.

1. For leak detection for crude oil transmission pipelines: *Technical Review of Leak Detection Technologies, Volume 1, Crude Oil Transmission Pipelines*, date unknown, by ADEC;

2. For secondary containment liners for oil storage tanks: *Technical Review of Secondary Containment System Technology For Alaska,* May 1, 1998, by Golder Associates Inc. for ADEC;
3. For fast water booming: *Evaluation of New Approaches to the Containment and Recovery of Oil in Fast Water*, December 2002, by the United States Coast Guard Research and Development Center (USCG R&DC); and *Oil Response in Fast Water Currents: A Decision Tool*, December 2002, by the USCG R&DC;
4. For viscous oil pumping systems: *Demonstration of Offloading a Mini-Barge Containing a Cold Viscous Crude Oil Emulsion*, January 7, 2004 by BP Exploration; and *Trip Report for Joint Viscous Oil Pumping System Workshop, December 1-15, 2003*, by LCDR Peter Nourse, USCG;
5. For well capping: *John Wright Company's WWW Technical Library Resource On Blowout Control*, currently available at www.jwco.com/technical-litterature/tech; and
6. Source control technologies: The actual technology to be reviewed and evaluated has not yet been determined by the ADEC. Examples of source control technologies may include: actions to stop a discharge from a punctured crude oil transmission pipeline; a ruptured oil storage tank; an exploration or production well blowout; a grounded crude oil ocean vessel; or another spill event.

From this technology review effort, we have found additional sources of information in the six categories that remain to be investigated. These include references listed in bibliographies and individuals considered to be technology experts. There is also a wealth of information contained in response plans developed by PRACs such as Alaska Chadux, Alaska Clean Seas, CISPRI, SEAPRO, SERVs, S.L. Ross Environmental and others.

4.2 Technology Provider Solicitation

Upon approval of this work plan, Shannon & Wilson will begin the process of soliciting input from technology providers in the six technology categories. A solicitation to submit potential BAT information will be developed on Shannon & Wilson's internet website. The internet web page will describe the BAT Conference objectives, date for the BAT Conference event, guidelines for technology provider input, and deadline for submission. The contents of the BAT Conference description page are shown on Figure 1. Links will be provided on the description page to ADEC's Oil and Hazardous Substance Pollution Control regulations, 18 AAC 75, and the Submission Form shown on Figure 2.

Shannon & Wilson has developed the Submission Form in conjunction with development of the criteria for conducting the preliminary screening and comparison of technology provider input. The Submission Form consists of two parts including a Technology Provider Profile form and a Technology Preliminary Screening form(s) specific to the technology category. It will also

contain questions aimed at determining: the evidence that clearly and convincingly supports the claim that the provider's technology is a proven technological breakthrough in oil discharge containment, control, or cleanup equipment; specific operations, geographical locations, or physical environments where the provider's technology could be applied; and the provider's level of interest in presenting their technology at the BAT Conference. The Technology Provider Profile form is presented in Figure 2.

The technology provider entering data on the Submission Form must choose one of the six listed technology categories. By selecting one of the six categories listed the technology provider will be directed to a category-specific Technology Preliminary Screening form. The purpose of the Technology Preliminary Screening is to allow the user to provide answers to specific questions that will be used in the evaluation process for comparison of technology provider input. Technology Preliminary Screening forms for the six categories are provided as Figures 3 through 8. Following submission of the on-line form, the user will be provided with an entry number for tracking purposes. The submitted information will be sent via email to a contact person at Shannon & Wilson, where it will be logged into a simple spreadsheet by entry number and technology category. The Log-In Sheet is provided in Figure 9. A submission deadline of March 26, 2004 has been established to allow for an evaluation period and notification of the selected presenters for the BAT Conference.

In addition to development of the internet web page solicitation, advertisements will be placed with appropriate internet forums with links to the BAT Conference description page and Submission Form. We anticipate that the ADEC internet administrator can provide a link to the BAT Conference description page on the ADEC internet web page. We will also contact RCACs and the Environmental Protection Agency for setting up links to the BAT Conference description page. Identified internet forums include:

a. International Directory of Oil Spill Cleanup Contractors at: www.cleanupoil.com;
b. Spill Control Association of America (SCAA) at: www.scaa-spill.org;
c. American Petroleum Institute (API) at: www.api-ep.api.org;
d. Association of Petroleum Industry Co-op Managers (APICOM) at: www.apicom.org
e. International Directory of Oil Spill Cleanup Contractors at: www.cleanupoil.com.

To encourage response to the web solicitation page developed for the BAT Conference, Shannon & Wilson will plan to use the results of the technology review to list and directly communicate with vendors, scientists, and research and development entities that have products or response solutions in the six technology categories. We will attempt to contact the entities who have demonstrated successful technologies and are well known in the oil spill prevention and response community to request their response to the web solicitation.

4.3 Technology Evaluation

Technologies presented at the BAT Conference for appraisal must be technologies which have been applied at other locations in Alaska, the United States and the world that represent alternatives to the technologies currently being used by C-Plan holders. Shannon & Wilson has interviewed ADEC staff members, PRAC and RCAC employees, and representatives of operations in Alaska and reviewed approved C-Plans and available literature to become aware of current successful technologies being used inside and outside Alaska in the six categories. Shannon & Wilson will solicit submission from providers of technologies that are currently in use inside or outside Alaska or are considered to be new and innovative, technological breakthroughs. Information provided on the Technology Provider Profile form and the category-specific Technology Preliminary Screening form will be used to evaluate the technology provider input and classify the submittals.

The evaluation and preliminary screening of technology provider input in the six categories will be performed using evaluation criteria established in 18 AAC 75.445(k)(3). The Technology Provider Profile form, shown on Figure 2, allows for an in-depth evaluation of technology provider input consistent with BAT evaluation criteria. We envision that an in-depth evaluation of the input will only be conducted following a ranking of technology providers based on the answers to the questions stated in category-specific Technology Preliminary Screening forms. Tentatively, the top five ranked technology providers currently working inside Alaska for each of the six technology categories will be selected for an in-depth evaluation. The technology providers currently working inside Alaska will answer "Yes" on the category-specific Technology Preliminary Screening forms when queried about current or past performance on projects in Alaska.

Similarly, the top five ranked technology providers currently working outside Alaska and the top five ranked technology providers for technologies considered to be new and innovative, technological breakthroughs for each of the six technology categories will be screened and selected for an in-depth evaluation. This will entail 15 in-depth evaluations for each of the six technology categories for an estimated total of 90 in-depth evaluations. Based on these in-depth evaluations, Shannon & Wilson, in conjunction with the ADEC project manager, will select approximately 30 to 36 presenters for the 2-day BAT Conference. The evaluation effort will be documented in the BAT Conference Plan.

5.0 TASK 2: PROVISION OF A SPILL TECHNOLOGY EXPERT

Shannon & Wilson has entered into a subconsultant agreement with Dr. Robert Hiltabrand to assist Shannon & Wilson and the ADEC Project Manager. Dr. Hiltabrand served as special assistant to the Federal-On-Scene-Coordinator (FOSC) during the 1989 Exxon Valdez oil spill. For development of this work plan, Dr. Hiltabrand has provided: guidance in researching existing technologies for solicitation, intake, and ranking procedures; technical advice on preliminary screening of potential technologies; and guidance in designing evaluation criteria. Dr. Hiltabrand will continue to perform similar services for the Task 3 effort discussed below. He will also participate as an ADEC representative and act as a technical expert during the BAT Conference review process. This will include participation on an ADEC formulated Evaluation Committee and acting as a professional consultant in determination of applicable technologies. Dr. Hiltabrand will also review and comment on Shannon & Wilson's draft BAT Conference report.

6.0 TASK 3: WORK PLAN IMPLEMENTATION AND DATA COMPILATION; CONFERENCE AGENDA DEVELOPMENT

Upon approval of this work plan, Shannon & Wilson will begin the process to solicit vendors, scientists, and research and development entities that have products or response solutions in the six technology categories. Prior to activation on Shannon & Wilson's internet website, we will plan to meet with the ADEC project manager to provide a preview of the appearance and functionality of the web solicitation. Comments or suggestions for enhancing the web solicitation will be incorporated into the format. Advertisements will be placed with appropriate internet forums with links to the BAT Conference description page.

We will continue our investigation of technologies that are currently in use inside and outside Alaska as well as those considered to be new and innovative, technological breakthroughs. We will contact technology providers who have demonstrated successful technologies and are well known in the oil spill prevention and response community to request their response to the web solicitation. All technologies reviewed will be recorded on the Log-In Sheet and the evaluation criteria described earlier will be used to screen submittals of technologies. Shannon & Wilson, in conjunction with the ADEC project manager, will select approximately 30 presenters for the 2-day BAT Conference.

The status of the review, solicitation and evaluation will be discussed weekly in a teleconference meeting with the ADEC project manager. Following the teleconference meeting, Shannon & Wilson's project manager will prepare a brief memo summarizing the items discussed.

Shannon & Wilson and Dr. Hiltabrand will collaborate with the ADEC project manager in the development of evaluation criteria for final ranking of technologies at the BAT Conference by the Evaluation Committee. We anticipate that the evaluation criteria established in 18 AAC 75.445(k)(3) will be used to develop a Technology Final Ranking form for the Evaluation Committee. It may be advantageous to transmit the Technology Final Ranking form to the BAT Conference presenters ahead of time to allow the technology providers to focus their presentations on issues to be evaluated. This will also allow for more efficient use of the 2-days during which time up to 30 technology presentations will be delivered and evaluated by the Evaluation Committee.

A BAT Conference Plan, including the results of the solicitation search, will be developed by Shannon & Wilson. The Plan will describe the format and content of the BAT Conference, including a list of presentations by technology providers within the six technology categories. The Plan will also include an estimate of attendees, location, schedule, logistical requirements, agenda, planned promotional efforts, a description of meals and beverages for participants, and other planning tasks.

Shannon & Wilson will present the BAT Conference Plan to the ADEC for approval. One three-hour meeting will be held to review the BAT Conference Plan and a one-hour meeting will be held to finalize the BAT conference plan. Following approval of the BAT Conference Plan by the ADEC, Shannon & Wilson will initiate implementation of the plan by notifying the approximately 30 presenters of their selection. While notifying presenters of their selection, Shannon & Wilson will determine their commitment to attending the BAT Conference. We will also inform the presenters that the preferred presentation media will be Microsoft Power Point and that arrangements will need to be made ahead of time to establish the availability of any other presentation media.

7.0 TASK 4: BAT CONFERENCE

Shannon & Wilson will provide facility planning, conference organization, compilation of evaluation scores, and documentation of the conference proceedings. Shannon & Wilson has entered into a subcontractor's agreement with Mr. Tom McCloskey of the McCloskey Group to provide facilitation of the conference proceedings. Mr. McCloskey will introduce the presenters and maintain focus on the objectives of the BAT Conference.

Shannon & Wilson will provide a facility that will accommodate the Evaluation Committee and allow for attendance by the interested public. Research into potential facilities for the BAT Conference has yielded several possibilities similar in pricing and services. The options include: the University of Alaska's Anchorage café, located on the UAA campus; the Egan Center, located in downtown Anchorage; and the Clarion/Hawthorn Suites, located on C

Street between 8th and 9th Avenues. The facility determination will be established during Task 3 with input from the ADEC and will be identified in the BAT Conference Plan. It should be noted that the BAT Conference event is scheduled for May 27 and 28, 2004, the week prior to the widely considered start up of the tourist season in Anchorage. BAT Conference facility and hotel reservations should be reserved at the earliest convenient time.

For the two 8-hour day BAT Conference, we anticipate five or six presenters in each of the six technology categories. Approximately 30 minutes will be allotted for each presentation. This 30-minute period will consist of: a 15-minute presentation; 2 minutes of questioning by each member of a 5-person Evaluation Committee; and 5 minutes between presentations to allow for filling out the Technology Final Ranking form and set up by the succeeding presenter. During the 16-hour session, with four 10-minute coffee/beverage breaks, we estimate that approximately 30 presentations can be delivered and evaluated. A preliminary schedule for the first day of the Conference is presented below.

08:00 Introduction

08:10 Category 1: Leak Detection For Crude Oil Transmission Pipelines

- 08:10 – 08:40 Presentation 1
- 08:40 – 09:10 Presentation 2
- 09:10 – 09:40 Presentation 3
- 09:40– 10:10 Presentation 4

10:10 Coffee/Beverage Break

- 10:20 – 10:50 Presentation 5

10:50 Category 2: Secondary Containment Liners For Oil Storage Tanks

- 10:50 – 11:20 Presentation 1
- 11:20 – 11:50 Presentation 2

11:50 Lunch Break (Lunch to be served to BAT Conference participants)

12:50 Category 2: Secondary Containment Liners For Oil Storage Tanks (Continued)

- 12:50 – 13:20 Presentation 3
- 13:20 – 13:50 Presentation 4
- 13:50 – 14:20 Presentation 5

14:20 Category 3: Fast Water Booming

- 14:20 – 14:50 Presentation 1

14:50 Coffee/Beverage Break

- 15:00 – 15:30 Presentation 2
- 15:30 – 16:00 Presentation 3

16:00 – 16:30 Presentation 4

16:30 – 17:00 Presentation 5

17:00 End of Day 1

A similar schedule would be developed for the other three technologies for Day 2. We will discuss the order of the presentations with the ADEC project manager to determine whether there is a preference for grouping presentations by: technology category; technologies currently used in Alaska; technologies currently used outside Alaska; or technologies considered to be new and innovative, technological breakthroughs. We will also discuss the possibility of having presenters set up booths to display their technologies for review by the Evaluation Committee and interested public during breaks. A Shannon & Wilson representative will participate in the observation of presentations during the BAT Conference to record and document the proceedings.

The ADEC will be responsible for assembling an Evaluation Committee, which will include Dr. Hiltabrand, to attend the conference and evaluate the technology presentations. The ADEC will also be responsible for collecting the Technology Final Ranking forms from the Evaluation Committee and providing a copy of the completed forms to Shannon & Wilson.

8.0 TASK 5: BAT CONFERENCE REPORT

Following receipt of the completed Technology Final Ranking forms from the ADEC, Shannon & Wilson will begin to compile the results of the evaluation and selection of leading technologies reviewed during the BAT Conference. We will produce a summary report containing a description of the evaluation process and a summary of the regulatory background. A complete list of the BAT Conference participants and proceedings will be included in the report.

The report will provide a discussion of the technology providers that were selected as proven technological breakthroughs in oil discharge prevention and response. Evaluation criteria used to rank each of the selected technology providers within the six categories and evaluation scores will also be provided. We will provide a description of the evidence that clearly and convincingly supports the determination that the technology providers selected as proven technological breakthroughs, if any, will result in superior advances in the efficiency or effectiveness of oil spill response efforts in Alaska. We will also identify the specific operations, geographic locations, or physical environments where the selected technologies could be applied.

9.0 SCHEDULE

Shannon & Wilson has established the following tentative schedule for accomplishing the five-task work effort described in this work plan. The schedule developed in this work plan, including the period for the web solicitation, arrangements for the spill technology expert and the conference facilitator, and facility reservation, is based on the assumption that the BAT Conference event will take place on May 27 and 28, 2004.

Project Activity	Date
Submit draft Work Plan (Task 1)	February 9, 2004
Receive ADEC comments on Work Plan	February 13, 2004
Submit final Work Plan	February 20, 2004
Implement Work Plan (Task 3)	February 20, 2004
Reserve BAT Conference Facility	February 23, 2004
Open Web Solicitation Period	February 26, 2004
Close Web Solicitation Period	March 26, 2004
Select BAT Conference Technology Presentations	April 2, 2004
Submit Draft BAT Conference Plan	April 2, 2004
Receive ADEC comments on BAT Conference Plan	April 9, 2004
Submit Final Conference Plan	April 16, 2004
Implement BAT Conference Plan	April 16, 2004
Notify BAT Conference Technology Presenters	April 19 to 23, 2004
Prepare BAT Conference Facility	May 26, 2004
BAT Conference Event (Task 4)	May 27-28, 2004
Submit draft BAT Conference Report (Task 5)	June 18, 2004
Receive ADEC comments on BAT Conference Report	June 25, 2004
Submit Final BAT Conference Report	June 30, 2004

We appreciate this opportunity to be of service. Please contact Stafford Glashan or the undersigned at (907) 561-2120 with questions or comments concerning the contents of this work plan.

Sincerely,

SHANNON & WILSON, INC.

Timothy M. Terry, C.P.G.
Associate

Figure 1 – BAT Conference Description

Best Available Technologies (BAT) Conference

Shannon & Wilson has entered into a contract with the Alaska Department of Environmental Conservation (ADEC) to develop and implement a Best Available Technologies (BAT) Conference, in accordance with Title 18 of the Alaska Administrative Code (AAC) Chapter 75, Oil and Other Hazardous Substances Pollution Control, Section 447 (18 AAC 75.447). The objective of the conference is to investigate and review proven technologies used in the worldwide spill prevention and response arena, as well as new innovative technologies, that could be effective in Alaska. Six specific technology categories are to be reviewed as part of the BAT Conference and include:

1. Leak detection for crude oil transmission pipelines;
2. Secondary containment liners for oil storage tanks;
3. Fast water booming;
4. Viscous oil pumping systems;
5. Well capping; and
6. Source control technologies.

Shannon & Wilson is soliciting technology presentations for the ADEC BAT Conference to be held on May 27 and 28, 2004 in Anchorage, Alaska. The ADEC will use the information gained through the Conference proceedings to assist in their evaluation of Oil Discharge Prevention and Contingency Plans (C-Plans) for various C-Plan holders throughout Alaska. In accordance with 18 AAC 75.425(e)(4)(A), C-Plan holders will be required to use the best available technology. Best available technology will be evaluated using the criteria in 18 AAC 75.445 (k) (3).

If you or your company is in possession of a technology that you believe meets the best available technology evaluation criteria, please complete the information requested on the attached Submission Form including the **Technology Provider Profile** form and **Technology Preliminary Screening** form(s) specific to your technology category. Top ranked technology providers for each of the six technology categories will be selected for presentations at the BAT Conference including: technology providers currently working inside Alaska; technology providers currently working outside Alaska; and technology providers of technologies considered to be new and innovative, technological breakthroughs, . The **Submittal Deadline is March 26, 2004**.

Figure 2 – Submission Form

Technology Provider Profile

Company Name: _____

Contact Name: _____

Company Address: _____

_____

Contact Phone Number: ___-___-____

FAX: ___-___-____

Email: _____@_____

Website URL: http://_____

Type of Business: _____

Number of Employees: _____Full Time:_____Part Time:_____

Years in Business: _____

Ownership (check one):

- o Private
- o Public
- o Stock-traded

Type of Client (by percentage):

Government _____ Private _____ Academic _____

Please provide at least three clients available for contact that you have provided goods and/or services for in the last five years.

A. _____

B. _____

C. _____

Technology Name: _____

Size and Specifications:

(scroll text box)

Figure 2 – Submission Form

Describe the proposed technology, including appropriate uses, technical specifications (including storage capacity, speed, power required for operation, etc), and operating environment:

(scroll text box)

What current technology or product is this technology designed to replace?

(scroll text box)

Please describe how this technology is superior to similar technologies for use in similar situations. Include a discussion of applicability to temperature, extreme environment, saltwater interaction, etc. If appropriate, cite current operations of this technology in similar situations.

(scroll text box)

Please describe how this technology would be transferable to operations in Alaska.

(scroll text box)

Please describe how this technology would provide increased spill prevention or other environmental benefits.

(scroll text box)

Please provide product costs, including startup, annual maintenance, and operating costs:

(scroll text box)

Please describe how the technology is compatible with existing operations and technologies in use. If not compatible, please describe how the product or technology will include duties currently provided by existing technologies.

(scroll text box)

Please describe the practical feasibility of this technology in terms of engineering or other operational aspects.

(scroll text box)

Please describe how this technology provides benefits for environmental impacts such as air, land, and water pollution; energy requirements; or additional environmental benefits.

(scroll text box)

Please provide additional information regarding the product or technology specific to uses in Alaska, advancement in its industry, or other considerations as best available technology.

(scroll text box)

Technology Preliminary Screening

Please complete a separate Technology Preliminary Screening form(s) specific to your technology by clicking on the following categories:

- Leak detection for crude oil transmission pipelines
- Secondary containment liners for oil storage tanks
- Fast water booming
- Viscous oil pumping systems
- Well capping
- Source control technologies

The information you provide on the Technology Preliminary Screening form(s) will be used in conjunction with the Technology Provider Profile information to select presentations for the May 27-28, 2004 BAT Conference. In addition, please provide the following information:

Please identify the evidence that clearly and convincingly supports the determination that your technology is a proven technological breakthrough in oil discharge containment, control, or cleanup equipment.

(scroll text box)

Please identify specific operations, geographical locations, or physical environments where your FWB technology could be applied.

(scroll text box)

Figure 2 – Submission Form

Conference Availability

Are you willing to volunteer time and expense to have a technical representative offer a presentation of your technology at the ADEC BAT Conference, held May 27 and 28, 2004, in Anchorage, Alaska?

- o Yes
- o No

Form Submission

By submitting this form, you are providing information to representatives of the Alaska Department of Environmental Conservation. You will be assigned a reference number upon submission.

Submit Form

Please feel free to contact us with any questions.

Tim Terry, Project Manager
Shannon & Wilson, Inc.
5430 Fairbanks Street, Suite 3
Anchorage, Alaska 99518
Ph: (907) 561-2120
Ph: (907) 561-4483
email: tmt@shanwil.com

Figure 3 - Leak Detection For Crude Oil Transmission Pipelines Preliminary Screening

	YES	NO
1. Your leak detection system (LDS) technology must be the best in use in other similar situations and available.		
Is your LDS technology currently being used on a crude oil transmission pipeline?		
Is your LDS technology currently being used on a non-crude oil transmission pipeline?		
Is your LDS technology currently being used in Alaska?		
Is your LDS technology currently being used in an environment similar to Alaska?		
Is your LDS technology available for purchase?		

	YES	NO
2. Your LDS technology must be transferable to crude oil transmission pipeline operations in Alaska.		
Can your LDS technology be implemented on existing Alaska crude oil transmission pipelines?		
Can your LDS technology be implemented on new or reconstructed Alaska crude oil transmission pipelines?		

	YES	NO
3. There must be a reasonable expectation that your LDS technology will provide increased spill prevention or other environmental benefits.		
Is your LDS technology more sensitive than existing LDS on Alaska crude oil transmission pipelines?		
Is your LDS technology more accurate than existing LDS on Alaska crude oil transmission pipelines?		
Is your LDS technology more reliable than existing LDS on Alaska crude oil transmission pipelines?		
Is your LDS technology more robust than existing LDS on Alaska crude oil transmission pipelines?		
Will your LDS technology benefit the environment if properly implemented on Alaska crude oil transmission pipelines?		

	$
4. The cost to implement your LDS technology on Alaska crude oil transmission pipelines must be considered. Please provide a rough order magnitude (ROM) cost for the installation, operation (including training), and maintenance of your LDS technology for the first year on a 1 meter diameter and 10 kilometer long pipeline for the following examples.	
What is your ROM cost for an underground crude oil transmission pipeline in Prudhoe Bay, Alaska?	
What is your ROM cost for an above ground crude oil transmission pipeline in Prudhoe Bay, Alaska?	
What is your ROM cost for a sub sea crude oil transmission pipeline in Prudhoe Bay, Alaska?	

	YES	NO
5. Your LDS technology must be compatible with existing operations and LDS technologies in use on existing Alaska crude oil transmission pipelines.		
Is your LDS technology compatible with volume balance methods?		
Is your LDS technology compatible with rarefaction wave methods?		
Is your LDS technology compatible with real time transient modeling methods?		
Is your LDS technology compatible with acoustic emissions methods?		
Is your LDS technology compatible with fiber optic sensing methods?		
Is your LDS technology compatible with liquid sensing methods?		
Is your LDS technology compatible with vapor sensing methods?		

	YES	NO
6. Your LDS technology must be practically feasible, in terms of engineering and other operational aspects, for implementation on Alaska crude oil transmission pipelines.		
Has your LDS technology been selected for use on a crude oil transmission pipeline based on a competitive bid?		
Has your LDS technology been selected for use on a non-crude oil transmission pipeline based on a competitive bid?		
Has your LDS technology been selected for use in Alaska based on a competitive bid?		
Has your LDS technology been selected for use in an environment similar to Alaska based on a competitive bid?		

	YES	NO
7. The environmental impact of your LDS technology must not offset environmental benefits.		
Will use of your LDS technology have a positive impact on air quality?		
Will use of your LDS technology have a positive impact on the land in the vicinity of the pipeline?		
Will use of your LDS technology have a positive impact on water quality?		
Will use of your LDS technology have normal energy requirements?		

Figure 4 - Secondary Containment Liners for Oil Storage Tanks Preliminary Screening

	YES	NO
1. Your secondary containment liner (SCL) technology must be the best in use in other similar situations and available.		
Is your SCL technology currently being used for oil storage tanks?		
Is your SCL technology currently being used for other liquid storage tanks?		
Is your SCL technology currently being used in Alaska?		
Is your SCL technology currently being used in an environment similar to Alaska?		
Is your SCL technology available for purchase?		

	YES	NO
2. Your SCL technology must be transferable to oil storage tank operations in Alaska.		
Can your SCL technology be implemented on existing Alaska oil storage tanks?		
Can your SCL technology be implemented on new or reconstructed Alaska oil storage tanks?		

	YES	NO
3. There must be a reasonable expectation that your SCL technology will provide increased spill prevention or other environmental benefits.		
Is your SCL technology more permeable than existing SCL on Alaska oil storage tanks?		
Is your SCL technology more chemically resistant than existing SCL on Alaska oil storage tanks?		
Is your SCL technology more durable than existing SCL on Alaska oil storage tanks?		
Can your SCL technology be sealed more securely at penetrations and connections with other materials than existing SCL on Alaska oil storage tanks?		
Will your SCL technology benefit the environment if properly implemented on Alaska oil storage tanks?		

	$
4. The cost to implement your SCL technology on Alaska oil storage tanks must be considered. Please provide a rough order magnitude (ROM) cost for the installation, operation (including training), and maintenance of your SCL technology for the first year on an above ground, single-wall, single-bottom, steel tank positioned within a compacted gravel containment structure sufficiently large to contain 110% of the volume of the tank for the following examples.	
What is your ROM cost for a 10,000-gallon Anchorage, Alaska oil storage tank?	
What is your ROM cost for a 100,000-gallon Anchorage, Alaska oil storage tank?	
What is your ROM cost for a 1,000,000-gallon Anchorage, Alaska oil storage tank?	

	YES	NO
5. Your SCL technology must be compatible with existing operations and SCL technologies in use on existing Alaska oil storage tanks.		
Is your SCL technology compatible with a compacted soil containment structure?		
Is your SCL technology compatible with a bedrock containment structure?		
Is your SCL technology compatible with a permafrost soil containment structure?		
Is your SCL technology compatible with typical cathodic protection systems for tanks and piping?		
Is your SCL technology compatible with typical leak detection systems for tanks and piping?		
Is your SCL technology compatible with typical loading and distributing pipe systems for tanks?		

	YES	NO
6. Your SCL technology must be practically feasible, in terms of engineering and other operational aspects, for implementation on Alaska oil storage tanks.		
Has your SCL technology been selected for use for an oil storage tank based on a competitive bid?		
Has your SCL technology been selected for use for another liquid storage tank based on a competitive bid?		
Has your SCL technology been selected for use in Alaska based on a competitive bid?		
Has your SCL technology been selected for use in an environment similar to Alaska based on a competitive bid?		
Has your SCL technology been approved by the EPA?		

	YES	NO
7. The environmental impact of your SCL technology must not offset environmental benefits.		
Will use of your SCL technology have a positive impact on air quality?		
Will use of your SCL technology have a positive impact on the land outside the oil storage tank secondary containment structure?		
Will use of your SCL technology have a positive impact on water quality?		
Will use of your SCL technology have normal energy requirements?		

Figure 5 - Fast Water Booming Preliminary Screening

	YES	NO
1. Your fast water booming (FWB) technology must be the best in use in other similar situations and available.		
Is your FWB technology currently being used for containment and recovery of oil in fast water?		
Is your FWB technology currently being used in Alaska?		
Is your FWB technology currently being used in an environment similar to Alaska?		
Is your FWB technology available for purchase?		

	YES	NO
2. Your FWB technology must be transferable to containment and recovery of oil in fast water operations in Alaska.		
Can your FWB technology be implemented on fast water river and canal operations in Alaska?		
Can your FWB technology be implemented on fast water small streams, creeks and culvert operations in Alaska?		
Can your FWB technology be implemented on fast water coastal operations in Alaska?		
Can your FWB technology be implemented on fast water harbor and bay operations in Alaska?		
Can your FWB technology be implemented on fast water breach or harbor entrance operations in Alaska?		

	YES	NO
3. There must be a reasonable expectation that your FWB technology will provide increased spill prevention or other environmental benefits.		
Can your FWB technology contain and recover 90% of the oil in Alaska fast water currents greater than 2 knots?		
Can your FWB technology contain and recover 90% of the oil in Alaska fast water currents greater than 4 knots?		
Can your FWB technology contain and recover 90% of the oil in Alaska fast water currents greater than 6 knots?		
Will your FWB technology benefit the environment if properly implemented to contain and recover oil in Alaska fast water currents?		

	$
4. The cost to implement your FWB technology for containment and recovery of oil in fast water operations in Alaska must be considered. Please provide a rough order magnitude (ROM) cost for the purchase, user training, and deployment of your FWB technology for containment and recovery of crude oil, on a calm day at 40 degrees F under the following situations.	
What is your ROM cost using 100 feet of 6-inch boom by 8-inch skirt anchored to the shore of a river near Valdez, Alaska with a current of 2 knots?	
What is your ROM cost using 500 feet of 10-inch boom by 12-inch skirt anchored to a coastal shore near Valdez, Alaska with a current of 4 knots?	
What is your ROM cost using 1000 feet of 18-inch boom by 12-inch skirt set in a "V" formation in an open harbor near Valdez, Alaska at a current of 6 knots?	

	YES	NO
5. Your FWB technology must be compatible with existing operations and technologies in use to contain and recover oil in fast waters in Alaska.		
Can your FWB technology be transported in commercial plane?		
Can your FWB technology be deployed with typical containment and recovery equipment?		
Can your FWB technology be deployed by two people?		
Does your FWB technology use typical containment and recovery booms?		
Does your FWB technology use typical containment and recovery anchoring equipment?		
Does your FWB technology use typical containment and recovery skimmer equipment?		
Does your FWB technology use typical containment and recovery retrieval equipment?		

	YES	NO
6. Your FWB technology must be practically feasible, in terms of engineering and other operational aspects, for implementation on containment and recovery of oil in fast water operations.		
Has your FWB technology been selected for use in fast water based on a competitive bid?		
Has your FWB technology been selected for use in Alaska based on a competitive bid?		
Has your FWB technology been selected for use in an environment similar to Alaska based on a competitive bid?		

	YES	NO
7. The environmental impact of your FWB technology must not offset environmental benefits.		
Will use of your FWB technology have a positive impact on air quality?		
Will use of your FWB technology have a positive impact on the land?		
Will use of your FWB technology have a positive impact on water quality?		
Will use of your FWB technology have normal energy requirements?		
Is your FWB technology made from recycled materials?		

Figure 6 - Viscous Oil Pumping Systems Preliminary Screening

	YES	NO
1. Your viscous oil pumping system (VOPS) technology must be the best in use in other similar situations and available.		
Is your VOPS technology currently being used for pumping viscous oil?		
Is your VOPS technology currently being used in Alaska?		
Is your VOPS technology currently being used in an environment similar to Alaska?		
Is your VOPS technology available for purchase?		

	YES	NO
2. Your VOPS technology must be transferable to viscous oil pumping operations in Alaska.		
Can your VOPS technology be implemented to pump crude oil at a 35 F?		
Can your VOPS technology be implemented to pump an emulsified crude oil and sea water at a 30 F?		
Can your VOPS technology be implemented to pump Bunker C oil at a 35 F?		
Can your VOPS technology be implemented to pump an emulsified Bunker C oil and sea water at a 30 F?		

	YES	NO
3. There must be a reasonable expectation that your VOPS technology will provide increased spill prevention or other environmental benefits.		
Can your VOPS technology be implemented to pump viscous oil at a viscosity of 35,000 centistokes?		
Can your VOPS technology be implemented to pump viscous oil at a viscosity above 200,000 centistokes?		
Can your VOPS technology be implemented to pump viscous oil at a viscosity of 35,000 centistokes and a rate of 500 barrels per hour?		
Can your VOPS technology be implemented to pump viscous oil at a viscosity of 35,000 centistokes and a rate of 500 barrels per hour through a 6-inch discharge hose length of 300 feet?		
Will your VOPS technology benefit the environment if properly implemented to pump viscous oil in Alaska?		

	$
4. The cost to implement your VOPS technology for viscous oil pumping operations in Alaska must be considered. Please provide a rough order magnitude (ROM) cost for the purchase and operator training of your VOPS technology for the following examples.	
What is your ROM cost for a VOPS capable of pumping oil at a viscosity of 35,000 centistokes and a rate of 500 barrels per hour?	
What is your ROM cost for a VOPS capable of pumping oil at a viscosity of 35,000 centistokes and a rate of 500 barrels per hour through a 6-inch discharge hose length of 300 feet?	

	YES	NO
5. Your VOPS technology must be compatible with existing operations and technologies in use to pump viscous oil in Alaska.		
Can your VOPS technology be used in a viscous oil recovery operation at a remote location on land?		
Can your VOPS technology be used in a viscous oil recovery operation on the ocean?		
Can your VOPS technology be used in a viscous oil recovery operation from a grounded ocean vessel?		

	YES	NO
6. Your VOPS technology must be practically feasible, in terms of engineering and other operational aspects, for implementation on viscous oil pumping operations.		
Has your VOPS technology been selected for use in viscous oil pumping based on a competitive bid?		
Has your VOPS technology been selected for use in Alaska based on a competitive bid?		
Has your VOPS technology been selected for use in an environment similar to Alaska based on a competitive bid?		

	YES	NO
7. The environmental impact of your VOPS technology must not offset environmental benefits.		
Will use of your VOPS technology have a positive impact on air quality?		
Will use of your VOPS technology have a positive impact on the land?		
Will use of your VOPS technology have a positive impact on water quality?		
Will use of your VOPS technology have normal energy requirements?		

Figure 7 - Well Capping Preliminary Screening

1. Your well capping (WC) technology must be the best in use in other similar situations and available.

	YES	NO
Is your WC technology currently being used for well capping?		
Is your WC technology currently being used in Alaska?		
Is your WC technology currently being used in an environment similar to Alaska?		
Is your WC technology available for purchase?		

2. Your WC technology must be transferable to well capping operations in Alaska.

	YES	NO
Can your WC technology be implemented to cap a well blowout on land?		
Can your WC technology be implemented to cap a well blowout on a gravel island?		
Can your WC technology be implemented to cap a well blowout on an ice island?		
Can your WC technology be implemented to cap a well blowout on an ocean platform?		

3. There must be a reasonable expectation that your WC technology will provide increased spill prevention or other environmental benefits.

	YES	NO
Can your WC technology reduce the time required to cap a well blowout?		
Can your WC technology reduce the amount of hydrocarbon product released during a well blowout?		
Will your WC technology benefit the environment if properly implemented in Alaska?		

4. The cost to implement your WC technology for well capping operations in Alaska must be considered. Please provide a rough order magnitude (ROM) cost for your WC technology for the following.

	$
What is your ROM cost for maintaining a contract with you on an as-needed basis for one year?	
What is your ROM cost for providing a well capping response package to be stationed at a North Slope production well operation?	
What is your ROM cost for providing a well capping response package to be stationed at a Cook Inlet production well operation?	

5. Your WC technology must be compatible with existing operations and technologies in use to cap blowout wells in Alaska.

	YES	NO
Can your WC technology be used to respond to a well capping request for a Anadarka operation?		
Can your WC technology be used to respond to a well capping request for a British Petroleum operation?		
Can your WC technology be used to respond to a well capping request for a ConocoPhillips operation?		
Can your WC technology be used to respond to a well capping request for a Forest Oil operation?		
Can your WC technology be used to respond to a well capping request for a Kerr-McGee operation?		
Can your WC technology be used to respond to a well capping request for a Marathon Oil operation?		
Can your WC technology be used to respond to a well capping request for a Unocal operation?		

6. Your WC technology must be practically feasible, in terms of engineering and other operational aspects, for implementation on well capping operations.

	YES	NO
Has your WC technology been selected for use in well capping based on a competitive bid?		
Has your WC technology been selected for use in Alaska based on a competitive bid?		
Has your WC technology been selected for use in an environment similar to Alaska based on a competitive bid?		

7. The environmental impact of your WC technology must not offset environmental benefits.

	YES	NO
Will use of your WC technology have a positive impact on air quality?		
Will use of your WC technology have a positive impact on the land?		
Will use of your WC technology have a positive impact on water quality?		
Will use of your WC technology have normal energy requirements?		

Figure 8 - Source Control Technologies Preliminary Screening

1. Your source control technology (SCT) must be the best in use in other similar situations and available.

	YES	NO
Is your SCT currently being used in Alaska?		
Is your SCT currently being used in an environment similar to Alaska?		
Is your SCT available for purchase?		

2. Your SCT must be transferable to operations in Alaska.

	YES	NO
Can your SCT be implemented on a punctured crude oil transmission pipeline?		
Can your SCT be implemented on a punctured oil storage tank?		
Can your SCT be implemented on an exploration or production well blowout?		
Can your SCT be implemented on a grounded crude oil ocean vessel?		

3. There must be a reasonable expectation that your SCT will provide increased spill prevention or other environmental benefits.

	YES	NO
Can your SCT reduce the time required to stop a discharge?		
Can your SCT reduce the amount of hydrocarbon product released?		
Will your SCT benefit the environment if properly implemented in Alaska?		

4. The cost to implement your SCT for operations in Alaska must be considered. Please provide a rough order magnitude (ROM) cost for your SCT for the following.

	$
What is your ROM cost for implementation on a one-quarter inch diameter puncture in a crude oil transmission pipeline in Fairbanks, Alaska?	
What is your ROM cost for implementation on a one-quarter inch diameter puncture in an oil storage tank in Anchorage, Alaska?	
What is your ROM cost for implementation on an exploration or production well above ground blowout in Prudhoe Bay, Alaska?	
What is your ROM cost for implementation on a grounded 500,000 barrel crude oil ocean vessel in Valdez, Alaska?	

5. Your SCT must be compatible with existing operations and technologies in use in Alaska.

	YES	NO
Can your SCT be used with typical operations in Alaska for a punctured crude oil transmission pipeline?		
Can your SCT be used with typical operations in Alaska for a ruptured oil storage tank?		
Can your SCT be used with typical operations in Alaska for an exploration or production well blowout?		
Can your SCT be used with typical operations in Alaska for a grounded crude oil ocean vessel?		

6. Your SCT must be practically feasible, in terms of engineering and other operational aspects, for implementation on well capping operations.

	YES	NO
Has your SCT been selected for use based on a competitive bid?		
Has your SCT been selected for use in Alaska based on a competitive bid?		
Has your SCT been selected for use in an environment similar to Alaska based on a competitive bid?		

7. The environmental impact of your SCT must not offset environmental benefits.

	YES	NO
Will use of your SCT have a positive impact on air quality?		
Will use of your SCT have a positive impact on the land?		
Will use of your SCT have a positive impact on water quality?		
Will use of your SCT have normal energy requirements?		

Figure 9 - Technology Provider Log-In Sheet

Technology Category	Tracking Number	Date Submitted	Technology Provider Name	Alaska Technology	Outside Alaska Technology	New, Innovative Technology	Company Contact	Phone	FAX	Email	Website